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Doug Garbarini
Chief, New York Remediation Branch
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United States Environmental Protection Agency, Region 2
290 Broadway, 18th Floor
New York, New York 10007-1866

Re: Model Review – Status Meeting

Dear Mr. Garbarini:

Following up on our meeting last Friday, I wanted to discuss the list of requests received via email by our modeling team from your modeling consultants on August 13, 2010. This list was extensive and to address all the items would require at least 60 person-days of work. Much of the list contains items that either modeling team could take on, now that your team has the model and related datasets. Consequently, we think it best to hold a face-to-face meeting with your modeling consultants so we can develop a cooperative approach that efficiently answers the posed questions and performs the suggested model simulations and model-to-data comparisons. In this way, your requests can be addressed more quickly and our teams can work collaboratively, as suggested by the Peer Review Panel.

On July 1, July 27, and August 11, your modeling team received hard drives containing the model calibrations, validations, and the scenario simulations from the June 28 Allowable Load Memo. We also conducted an extensive 2 ½ day model review and training session in Ann Arbor, Michigan on July 14 -16. Since that time, we have not received any feedback from your team as to their thoughts on the model's structure, performance or applicability to the Hudson River dredging program. At the proposed face-to-face meeting, we would like the EPA team provide any feedback they can on the model, with the understanding that such feedback would not be the "final word" on EPA's thoughts on the model. Doing so would expedite the process of getting the model ready for peer review.

Finally, in an effort to be responsive, I am attaching answers to the six clarification questions that were part of EPA's August 13 model requests. As mentioned above, the other requests in the August 13 email represent significant work and we would like to discuss them in more detail with your modeling team at the earliest date that is convenient for everyone involved. Please give me a call so we can discuss potential dates.

Sincerely,

John G. Haggard
Manager, Site Evaluation and Remediation Program
Corporate Environmental Programs

Enclosure

cc: David King, USEPA
Ben Conetta, USEPA
Douglas Fischer, Esq., USEPA
Sheri Moreno, GE
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Jennifer Benaman, Anchor QEA
Darci DeLisle, GE

Responses to Clarification Questions posed on August 13, 2010

Question/Request	Response
Table 1 in the "Proposed Allowable Downstream PCB Load" memo shows that modeled net load at Waterford, using 5% resuspension, is much higher than measured data. Please explain why this is and how the modeled estimate can be reconciled with measured data.	The model boundary condition at the upstream end of Reach 7 is set to the data measured during the dredging. Therefore, the over prediction at Waterford suggests that the model underestimates the PCB losses (i.e., settling and volatilization) that occurred between the Thompson Island station and Waterford. Because the data show a greater drop in Tri+ PCBs, one idea is that there was greater settling than accounted for in the model. We are looking at other metrics from the model to better understand the model-data differences and will discuss with you once we have had reviewed the results.
In simulating the Phase 1 dredge scenario, GE replaced the actual data at TI to simulate the downstream reaches. In calculating the cumulative loads at Waterford, were the actual data for 2009 used or the model prediction?	When calculating the cumulative gross load shown in the June 28, 2010 Allowable Load Memo, modeled results were used at Waterford for all years.
Yellow Perch data were collected for 2003-2009, and Yellow Perch were included in EPA's simulations at the time of the remedy decision. Please explain why they were not included in the current bioaccumulation model and the 2009 Phase 1 simulation.	In developing the 1999 model, we did not include yellow perch because we felt: 1) the data set was insufficient for calibration; and 2) this species was not needed to model the food webs terminating in bass and bullhead. When updating the model, we did not add in yellow perch because we assumed that its response to dredging would not be significantly different than the other species modeled.
Both the May 2010 presentations and June 2010 memo include baseline load estimates. How were they calculated and why are they different? What are the equivalent numbers for Tri+ PCBs? Please supply the necessary files and data inputs used to determine baseline loads, and explain how the correction factor may have impacted these calculations.	Both estimates are based on the baseline period (2004-2008). The May 2010 presentation relied on the load predicted by the model, whereas the June 2010 memo relied on the load calculated from the data (these differ by about 7%). In both cases the baseline load for the dredging period is the average of the baseline period annual loads times the number of years of dredging (6 years).

	We provided the model calibration in our model input/output file transfers to you on July 1, 2010. We also provided the BMP data exports in July via ftp. The 2009 correction factor does not impact baseline load numbers, which rely on the 2003 bias correction factor.
The Phase 1 and 2 simulations in the June 2010 memo "Proposed Allowable Downstream PCB Load" assume redeposition, whereas the simulations presented to the Peer Review Panel in May 2010 assumed no redepostion. How was "no redeposition" simulated for the May presentation, and what parameters or other factors were changed to simulate redeposition? Why did gross PCB load decline when redeposition was included?	The "no redeposition" simulation releases PCBs at the point of dredging, but does not release solids. Thus, it underestimates the redeposition of sediment-associated PCBs resuspended by dredging. To properly account for redeposition, we release both PCBs and solids at the point of dredging. Including solids resuspension reduces the downstream gross load because of the greater loss of PCBs to the bed via redeposition.
Please explain why Anchor QEA's sediment transport model, which uses portions of the SEDZLJ bed model, did not also use the SEDZLJ algorithms for modeling of cohesive sediment resuspension in the Upper Hudson.	The SEDZLJ algorithms for modeling cohesive sediment erosion rely on SedFlume erosion measurements. Such measurements were not made on Hudson River sediments. Rather, erosion tests were conducted using the shaker apparatus and the data from these tests parameterize the erosion formulation used in the model.